

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	: Masaki HASHIMOTO et al.	Confirmation No.:	9658
Appl. No.	: 10/561,622	Examiner:	Son T. NGUYEN
I.A. Filed	: June 18, 2004	Group Art Unit:	3643
For	: PLANT CULTIVATING BASE BODY AND METHOD OF MANUFACTURING THE SAME		

**REPLY BRIEF UNDER 37 C.F.R. § 41.41(a)(1)**

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Sir:

This Reply Brief is in response to the Examiner's Answer mailed January 7, 2011, the period for reply extending two months until March 7, 2011. Appellant respectfully requests that the Examiner's decision to reject claims 11-27 be reversed.

In the Examiner's Answer all grounds of rejection set forth in the final rejection are maintained.

Appellant notes that the Examiner's Answer does not sufficiently address Appellant's arguments as to why the rejections are without merit and, in fact, misrepresents a number of facts which are explicitly disclosed in the prior art used in the rejections. These deficiencies are addressed in the present Reply Brief.

Because the Examiner's Answer does not appropriately address Appellant's arguments and includes misstatements of the explicit teachings in the prior art, this Reply Brief is being submitted with detailed arguments, and addresses the separate listings of claims as presented in

the Examiner's Answer. However, in order to avoid repetition, the following response to the Examiner's arguments in the Examiner's Answer is limited to issues which are important enough to warrant a further comment in Appellant's opinion. Accordingly, Appellant's silence with respect to any allegations set forth in the Examiner's Answer that are not specifically addressed below should by no means be construed as Appellant's admission that these allegations are of any merit.

The **STATUS OF CLAIMS** is provided on page 3 of the Reply Brief.

The **GROUND OF REJECTION TO BE REVIEWED ON APPEAL** is provided on page 4 of the Reply Brief.

The **ARGUMENT** begins on page 5 of the Reply Brief.

The **CONCLUSION** is provided on page 23 of the Reply Brief.

**STATUS OF CLAIMS**

Claims 11-27, all of the claims currently pending in this application, stand finally rejected with claims 11, 15, 16 and 19 being rejected under 35 U.S.C. 102(b) and claims 12-14, 17, 18 and 20-27 being rejected under 35 U.S.C. 103(a). Appellant appeals the final rejection of claims 11-27.

Claims 1-10 were previously cancelled.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

(a) Whether claims 11, 15, 16 and 19 are anticipated under 35 U.S.C. 102(b) by Kistner (Re32476).

(b) Whether claims 12-14, 17, 18 and 20-27 are unpatentable under 35 U.S.C. 103(a) over Kistner (Re32476).<sup>1</sup>

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<sup>1</sup> Dependent claims 12-14, 17, 18 and 20 ultimately depend upon independent claim 11 while claim 21 is independent and dependent claims 22-27 ultimately depend upon independent claim 21. Accordingly, the arguments presented herein with respect to the obviousness rejection separate the two universes of claims for purposes of clarity.

**ARGUMENT****(A) Kistner does not anticipate claims 11, 15, 16 and 19 under 35 U.S.C. 102(b)**

Appellant's claim 11 is directed to a plant cultivating substrate produced by reacting a water-retentive filling material, water, urethane prepolymer and a polyol under conditions which form a plant cultivating substrate. Accordingly, Appellant's recited plant cultivating substrate is produced by reacting the recited components, which components not only include a urethane prepolymer, but also include a polyol.

The Examiner's rejection appears to understand that Appellant's claim 1 not only recites a urethane prepolymer, but also recites a polyol. However, the rejection contends that Kistner includes a polyol in his reaction to produce a plant cultivating substrate. In particular, the Examiner's Answer notes, at page 9, that:

Appellant argued that Kistner does not teach polyol because Example 1 of Kistner describes the reaction of polyoxyethylene diol with tolylene diisocyanate, to produce a urethane prepolymer. Then, at Example 2, the prepolymer, without polyol, is added to sand and water.

In an attempt to address Appellant's argument, the Examiner Answer contends that:

Examples 1-2 of Kistner show that the urethane prepolymer is a separate element from the polyol because it does not have to include the polyol in order to classify it as urethane prepolymer. However, as explained in columns 3-4, polyol can be added with polyoxyethylene diol and tolylene diisocyanate or other prepolymers (ingredients that, alone, can make up the urethane prepolymer); thus, this demonstrate that urethane prepolymer and the polyol are separate elements. For example, polyoxyethylene diol and tolylene diisocyanate or other prepolymers, alone, can be called urethane prepolymer, thus, polyol is not a part of urethane prepolymer. When one wishes to add polyol, even though it create one "integral" urethane prepolymer, polyol can still be considered as a separate element, which does meet the claim language of "urethane prepolymer and polyol". In addition, examples 1-2 are merely two examples of the invention that the user can have for the substrate but not necessary or the invention as a whole.

In contrast, to the Examiner's assertions, Kistner explicitly discloses that "urethane prepolymer" is a reaction product of polyol and organic polyisocyanate (or polyisothiocyanate),

and it is the reaction product, i.e., the urethane prepolymer, that is used to consolidate the aggregate material in Kistner. In fact, Kistner discloses that the urethane prepolymer is added as a one component system. Thus, in contrast to the Examiner's contentions, the polyol of Kistner is disclosed as being reacted to form Kistner's disclosed urethane prepolymer, which urethane prepolymer is used as the advantageous one component system. Kistner is silent as to the addition of polyol, and therefore each and every feature recited in Appellant's claim 11 is not disclosed in Kistner so that the rejection is without appropriate basis.

In particular, attention is directed to Kistner, at column 2, lines 14-24; column 2, lines 37-45; and column 3, beginning at line 53. In fact, at column 2, lines 14-24, Kistner specifically discloses not only that the organic polyisocyanate is present in excess of stoichiometry (with respect to the polyol), **but that the fluid agent comprising the urethane prepolymer is advantageous in that it is a one-part system, requiring no elaborate equipment for preparation or for application thereof to the aggregate material, with water being the only necessary co-reactant material.**

Kistner does not disclose the inclusion of a polyol in a mixture to form an integral water-permeable mass, and only discloses (at column 5, lines 28-41) the inclusion to the mixture of aggregate, urethane prepolymer and possibly fertilizer, herbicides, etc., followed by water. Similarly, Kistner's Examples do not include the addition of a polyol.

**Thus, the only polyol disclosed in Kistner is the polyol that is reacted with the polyisocyanate or the polyisothiocyanate to form the urethane prepolymer (isocyanate-terminated prepolymer).** Moreover, as noted above, a stoichiometric excess of polyisocyanate or the polyisothiocyanate is used in the reaction to form the urethane prepolymer for reaction with all of the polyol used to form the urethane prepolymer.

Claim 11 is a product by process claim. The plant cultivating substrate is obtained by reacting the filling material, water, urethane prepolymer and polyol. The components are all mixed together, as is explained at, e.g., page 13 of Appellant's specification. Such, however, is not the case in Kistner. According to Kistner, as disclosed at column 2, lines 36-45, a urethane prepolymer is made "by reacting a material having a plurality of active hydrogen atoms, such as polyols, with an amount of organic polyisocyanate or polyisothiocyanate in excess of stoichiometry." Kistner, at column 3, line 50 *et seq.* discloses the polyol precursors that are useful in making prepolymers. The prepolymers are used, with water and aggregate, as column 6, line 21 *et seq.* explain. Example 1 of Kistner describes the reaction of polyoxyethylene diol with tolylene diisocyanate, to produce a urethane prepolymer. This preparation of the urethane prepolymer is under substantially anhydrous conditions. Then, at Example 2, the prepolymer, without addition of polyol, is added to sand and water.

Generally, the urethane prepolymer reacts with water, whereby self-foaming occurs with the discharge of carbon dioxide gas ( $\text{CO}_2$ ). The reaction between the urethane prepolymer and water produces amine and the produced amine further reacts with the isocyanate group of the urethane prepolymer, so that elongation of the polymer chain occurs to form urethane sponge.

In the case of Appellant's claim 11, urethane prepolymer, water-retentive filling material and water are reacted in the presence of polyol. As explained, *supra*, the urethane prepolymer has high reactivity with water and the amine produced from this reaction also has higher reactivity than polyol, so the elongation of polymer chain due to the foaming reaction between the urethane prepolymer and water occurs predominantly; however, when the polyol is present in this forming process of this urethane sponge, at least a portion of the polyol is involved in this reaction, thus contributing to the polymer chain elongation. In this case, as the polyol has lower

reactivity than the amine produced from the reaction between urethane prepolymer and water, there is a difference in the elongation velocity between the polymer chain produced by the reaction of polyol, and the polymer chain produced from the reaction of amine. This velocity difference leads to non-uniformity in the membrane of pores (cells) produced by the foaming of the urethane sponge produced, whereby eruption of the membrane occurs from the weaker spots, thus establishing communication with adjacent pores. Thus, the resultant plant cultivating substrate has a greater number of pores which communicate with each other. Such a substrate having a large number of pores that communicate with each other absorbs a greater amount of water via capillarity, so that the water absorbency or absorbent efficiency is improved dramatically. On the other hand, in the case of Kistner, as polyol is not added at the time of the substrate producing reaction, and no foaming occurs in the production reaction of urethane prepolymer as water is absent, no such non-uniformity of cell membrane is expected to occur. Thus, it would appear that no eruption of membrane occurs for establishing communication between adjacent pores, and as a result the pores in Kistner's substrate would appear to be present independently of each other, i.e., appear not to be in communication with each other.

The Examiner's Answer improperly is silent with respect to arguments that have been presented in Appellant's Appeal Brief as restated above. The Examiner's Answer does not address these arguments or the showing made by Appellant in the originally filed application. **In particular, the Tables shown in Appellant's Figs. 3 and 4 establish that products having different properties are expected when a polyol is not included (Fig. 3) as compared to Appellant's invention when a polyol is included (Fig. 4).** Thus, as disclosed in Appellant's application, beginning at page 18 penultimate line of the specification, the table in Fig. 3 shows results of evaluations made on plant cultivating substrate samples (**Comparison Examples 1-7**)



manufactured by methods including the conventional methods including urethane prepolymer without addition of polyol. The table in Fig. 4 shows results of evaluations made on plant cultivating substrate samples (Examples 1-10) manufactured by methods of Appellant's invention with the addition of urethane prepolymer and polyol.

A review of the results in the Comparison Examples 1-7 as compared to Example 1-10 reveal differences in properties of the substrates which is readily evident from structural differences in the substrates. Accordingly, in similar circumstances to that disclosed by Kistner, Appellant shows superior properties when polyol is added as compared to when a polyol is not added, such as in Kistner where there is no disclosure of adding a polyol to consolidate the aggregate material.

The rejection is apparently attempting to make some type of inherency assertion regarding the product of Kistner compared to Appellant's recited product. However, in order for inherency to be present, the Examiner has the burden of showing that the result indicated by the Examiner is the necessary result, and not merely a possible result.

As the Board of Patent Appeals and Interferences states in Ex parte Levy, 17 U.S.P.Q.2d 1461, 1463 (Bd. Pat. App. & Inter. 1990):

However, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention rests upon the examiner. In re Piasecki, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984). In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986); W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983); In re Oelrich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981); In re Wilding, 535 F.2d 631, 190 USPQ 59 (CCPA 1976); Hansgirk v. Kemmer, 102 F.2d 212, 40 USPQ 665 (CCPA 1939). in order for inherency to be present it must be a necessary result, and not merely a possible results. Ex parte Keith and Turnquest, 154 U.S.P.Q. 320 (B.O.A. 1966).

Accordingly, the rejection must establish that the product of Kistner which uses **urethane prepolymer as a disclosed one-part system is the same as** Appellant's recited product obtained by the addition polyol in addition to a urethane prepolymer. In the instant situation, the rejection has not provided any technical reasoning to reasonably support any rejection, **especially when the rejection does not address Appellant's arguments and does not address Appellant's originally disclosed comparative showings, but instead presents arguments that are in direct contrast to the explicit disclosure of Kistner.**

The features of claims 15, 16 and 19 are not disclosed in Kistner for at least the reasons set forth with respect to claim 11. Therefore, these claims are not anticipated by Kistner at least for the reasons set forth above.

Accordingly, the Examiner has not established a prima facie case of anticipation as each and every feature of the recited subject matter is not disclosed in Kistner. Thus, the rejection of claims 11, 15, 16 and 19 should be reversed.

**(B) Kistner does not render claims 12-14, 17, 18 and 20 unpatentable under 35 U.S.C.**

**103(a)**

**(1) Claim 12 is not obvious over Kistner**

Claim 12 further patentably defines the plant cultivating substrate of claim 11 by reciting that said water retentive filling material under dry conditions is from 15 to 60 wt. % of said plant cultivating substrate.

The Examiner's Answer contends that, "It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the water retentive filling material under dry conditions in the substrate of Kistner be from 15 to 60 wt. % of said plant

cultivating substrate, depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein.”

The rejection improperly does not point to any disclosure of Kistner to support the contentions in the rejection. The only disclosure that the rejection references is the disclosure of Kistner at column 6, lines 25-3 [sic], which pertains not to the aggregate material but to the amount of prepolymer required to consolidate the aggregate material of Kistner. The rejection improperly does not establish any teaching or suggestion in Kistner that the asserted “depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein.” is a result effective variable. The rejection merely points to disclosure in Kistner of an amount of prepolymer required to consolidate the aggregate material. Accordingly, the rejection does not establish that Appellant’s recited subject matter is a result effective variable to be optimized as asserted in the rejection.

Accordingly, the basis for the rejection is not supported by any disclosure of Kistner relied upon in the rejection.

Therefore, the rejection of claim 12 is without sufficient basis and should be reversed.

**(2) Claim 13 is not obvious over Kistner**

Claim 13 further patentably defines the plant cultivating substrate of claim 11 by reciting that said polyol contains an ester group.

The Examiner's Answer notes that Kistner does not disclose that the polyol contains an ester group, but contends that it would have been obvious to select a known material on the basis of its suitability for the intended use (more potent or not) as a matter of obvious choice.

The rejection is improper because the rejection does not establish that a polyol containing an ester group would have been known in the process disclosed by Kistner. This is especially the situation when Kistner does not disclose a polyol containing an ester group and the rejection does not point to any documentary evidence to show that a polyol containing an ester group is known in preparing a plant cultivating substrate. Kistner does not disclose adding a polyol when consolidating the aggregate material, let alone a polyol containing an ester group. Following the disclosure of Kistner, there is absolutely no reason to consolidate his aggregate material by adding a polyol, let alone a polyol containing an ester group.

Still further, Appellant's originally filed application discloses at page 23, lines 17-23, superior shape retentivity and water absorptivity of polyester type polyol as compared to polyether type polyol. In particular, it is disclosed that:

Incidentally, in the table of FIG. 4, in Example 1 and Example 2, analyses were conducted with one of aims thereof being to find out what differences in physical properties would result between the case of using a polyester type polyol and the further case of using a polyether type polyol, as the polyol to be added. From this, it is understood that the polyester type polyol is superior to the polyether type polyol in the respects of both the shape retentivity and the water absorptivity.

Accordingly, the rejection is without sufficient basis in that it does not establish any reason for adding a polyol let alone a polyol containing an ester group in process or product disclosed by Kistner.

Therefore, the rejection of claim 13 is without sufficient basis and should be reversed.

**(3) Claim 14 is not obvious over Kistner**

Claim 14 further patentably defines the plant cultivating substrate of claim 11 by reciting that the polyol is present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions.

The Examiner's Answer references column 6, lines 27-30 and the examples of Kistner asserting that these portions of Kistner disclose wt. parts for the polyol, and states that Kistner is silent about wherein the polyol is present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions. However, the Examiner's Answer contends that, "It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the polyol of Kistner be present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions, depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein."

The rejection improperly does not point to any disclosure of Kistner to support the contentions in the rejection. The only disclosure of Kistner that the rejection points to is the disclosure of Kistner pertaining to the amount of prepolymer required to consolidate the aggregate material of Kistner. The rejection improperly does not establish any teaching or suggestion in Kistner of the asserted "depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein." Accordingly, the rejection does not establish that Appellant's recited subject matter is a result effective variable that can be optimized as asserted in the rejection.

Accordingly, the basis for the rejection is not supported by any disclosure of Kistner relied upon in the rejection.

Therefore, the rejection of claim 14 is without sufficient basis and should be reversed.

**(4) Claim 17 is not obvious over Kistner**

Claim 17 further patentably defines the plant cultivating substrate of claim 11 by reciting wherein said urethane prepolymer is present in an amount of from 50 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions.

The Examiner's Answer references column 6, lines 23-35, and the examples of Kistner asserting that these portions of Kistner disclose wt. parts for the urethane prepolymer, and states that Kistner is silent about wherein said urethane prepolymer is present in an amount of from 50 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions. However, the Examiner's Answer contends that, "It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the urethane prepolymer of Kistner be present in an amount of from 50 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions, depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein."

The rejection improperly does not point to any disclosure of Kistner to support the contentions in the rejection. The only disclosure that the rejection points to is the disclosure of Kistner pertaining to the amount of prepolymer required to consolidate the aggregate material of Kistner. The rejection improperly does not establish any teaching or suggestion in Kistner of the asserted "depending on the type of plant grown in the substrate because each plant type required

different ingredients in the substrate and depending on the potency of the substrate grown therein.” Accordingly, the rejection does not establish that Appellant’s recited subject matter is a result effective variable that can be optimized as asserted in the rejection.

Moreover, Kistner specifically discloses a range of 1 to 40 weight percent or higher, and preferably 3 to 20 weight percent, based upon the weight of the aggregate material. The rejection improperly does not address these values of Kistner and/or why one having ordinary skill in the art would not seek to experiment within the preferred range of Kistner.

Accordingly, the Examiner’s basis for supporting the rejection is not supported by the relied upon disclosure of Kistner.

Therefore, the rejection of claim 17 is without sufficient basis and should be reversed.

**(5) Claim 18 is not obvious over Kistner**

Claim 18 further patentably defines the plant cultivating substrate of claim 11 by reciting wherein said urethane prepolymer is present in an amount of from 120 to 200 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions.

The Examiner’s Answer references column 6, lines 23-35 and the examples of Kistner asserting that these portions of Kistner disclose wt. parts for the urethane prepolymer, and states that Kistner is silent about wherein said urethane prepolymer is present in an amount of from 120 to 200 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions. However, the Examiner’s Answer contends that, “It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the urethane prepolymer of Kistner be present in an amount of from 120 to 200 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions, depending on the type of

plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein.”

The rejection improperly does not point to any disclosure of Kistner to support the contentions in the rejection. The only disclosure that the rejection points to is the disclosure of Kistner pertaining to the amount of prepolymer required to consolidate the aggregate material of Kistner. The rejection improperly does not establish any teaching or suggestion in Kistner of the asserted “depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein.” Accordingly, the rejection does not establish that Appellant’s recited subject matter is a result effective variable that can be optimized as asserted in the rejection.

Moreover, Kistner specifically discloses a range of 1 to 40 weight percent or higher, and preferably 3 to 20 weight percent, based upon the weight of the aggregate material. The rejection improperly does not address these values of Kistner and/or why one having ordinary skill in the art would not seek to experiment within the preferred range of Kistner.

Accordingly, the Examiner’s basis for supporting the rejection is not supported by the relied upon disclosure of Kistner.

Therefore, the rejection of claim 18 is without sufficient basis and should be reversed.

**(6) Claim 20 is not obvious over Kistner**

Claim 20 further patentably defines the plant cultivating substrate of claim 11 by reciting wherein the substrate has water absorptivity of from 25% to 75% by weight relative to the weight of said plant cultivating substrate, hardness of from 20N to 40N, and restoring force of from 4N to 10N.



The Examiner's Answer states that Kistner is silent with respect to the subject matter recited in Appellant's claim 20. However, the Examiner's Answer contends that, "It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the substrate of Kistner with a water absorptivity of from 25% to 75% by weight relative to the weight of said plant cultivating substrate, hardness of from 20N to 40N, and restoring force of from 4N to 10N, depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein."

The rejection improperly does not point to any disclosure of Kistner to support the contentions in the rejection. The rejection improperly does not establish any teaching or suggestion in Kistner of the asserted "depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein." Accordingly, the rejection does not establish that Appellant's recited subject matter is a result effective variable that can be optimized as asserted in the rejection.

Accordingly, the Examiner's basis for supporting the rejection is not supported by the relied upon disclosure of Kistner.

Therefore, the rejection of claim 20 is without sufficient basis and should be reversed.

**(C) Kistner does not render claims 21-27 unpatentable under 35 U.S.C. 103(a)**

**(1) Claims 21 and 25-27 are not obvious over Kistner**

Appellant's independent claim 21 is directed to a method of manufacturing a plant cultivating substrate comprising reacting and curing (i) a water-retentive filling material, (ii)

water, (iii) a urethane prepolymer and (iv) a polyol, wherein said water-retentive filling material under dry conditions is from 15 to 60 wt. % of said plant cultivating substrate.

A review of claim 21 reveals that it is directed to a method of manufacturing a plant cultivating substrate which includes reacting and curing at least four components. These components include not only a water-retentive filling material and water, but also include a urethane prepolymer **and polyol**. For all of the reasons set forth above with respect to Appellant's claim 11, Kistner does not disclose including polyol. At most, Kistner discloses forming the urethane prepolymer by reacting a polyol with polyisocyanate or polyisothiocyanate to form the urethane prepolymer (isocyanate-terminated prepolymer). This formed urethane prepolymer is then used in Kistner's reaction without any addition of a polyol in any of Kistner's disclosed reactions. In fact, as noted with respect to claim 11, Kistner discloses this urethane prepolymer as being **advantageous in that it is a one-part system, requiring no elaborate equipment for preparation or for application thereof to the aggregate material, with water being the only necessary co-reactant material.**

For the sake of brevity, Appellant is not repeating each of the arguments set forth with respect to claim 11, and incorporates such arguments by reference herein, including arguments pertaining to the expected differences in the resulting product and the demonstrated superior results of polyol being added in the tables shown in Figs. 3 and 4 of Appellant's application.

Thus, it is seen that Kistner does not disclose Appellant's recited method, because one having ordinary skill in the art would not have modified Kistner to add a polyol to the reaction. This is especially the situation when Kistner does not disclose addition of polyol, but only of urethane prepolymer; and there is no documentary support for adding a polyol to the reaction of

Kistner. Moreover, Appellant's application demonstrates superior results when polyol is added to such a reaction.

Still further, Kistner does not render obvious Appellant's recited amount of the water-retentive filling material under dry conditions being from 15 to 60 wt. % of the plant cultivating substrate in a reaction wherein polyol is added to the reaction.

The features of claims 25-27 are not taught or suggested by Kistner for at least the reasons set forth with respect to claim 21. Therefore, these claims are not obvious over Kistner at least for the reasons set forth above.

Accordingly, the Examiner has not established a prima facie case of obviousness based upon Kistner, and the rejection of claims 21 and 25-27 should be reversed.

**(2) Claim 22 is not obvious over Kistner**

Claim 22 further patentably defines the method of claim 21 by reciting (i) mixing the water-retentive filling material with the water to form a first suspension, (ii) adding the urethane prepolymer and the polyol to the first suspension and mixing to form a second suspension, (iii) reacting and curing said second suspension to obtain the plant cultivating substrate.

The Examiner's Answer notes that Kistner does not disclose Appellant's recited method, but contends that Appellant's recited method would have been obvious depending upon the user's intended use of the substrate of Kistner.

Certainly, the Examiner's basis for supporting the rejection is without appropriate basis, because Kistner does not disclose adding polyol let alone polyol in the manner recited in claim 22.

Accordingly, this ground of rejection is without appropriate basis and should be reversed.

**(3) Claim 23 is not obvious over Kistner**

Claim 23 further patentably defines the method of claim 21 by reciting wherein the polyol is present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions.

The Examiner's Answer references column 6, lines 27-30 and the examples of Kistner asserting that these portions of Kistner disclose wt. parts for the polyol, and states that Kistner is silent about wherein the polyol is present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions. However, the Examiner's Answer contends that, "It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the polyol of Kistner be present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions, depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein."

The rejection improperly does not point to any disclosure of Kistner to support the contentions in the rejection. The only disclosure that the rejection points to is disclosure of Kistner pertaining to the amount of prepolymer required to consolidate the aggregate material of Kistner. The rejection improperly does not establish any teaching or suggestion in Kistner of the asserted "depending on the type of plant grown in the substrate because each plant type required different ingredients in the substrate and depending on the potency of the substrate grown therein." Accordingly, the rejection does not establish that Appellant's recited subject matter is a result effective variable that can be optimized as asserted in the rejection.

Accordingly, the basis for the rejection is not supported by any disclosure of Kistner relied upon in the rejection.

Therefore, the rejection of claim 23 is without sufficient basis and should be reversed.

**(4) Claim 24 is not obvious over Kistner**

Claim 14 further patentably defines the method of claim 21 by reciting that the polyol contains an ester group.

The Examiner's Answer notes that Kistner does not disclose that the polyol contains an ester group, but contends that it would have been obvious to select a known material on the basis of its suitability for the intended use (more potent or not) as a matter of obvious choice.

The rejection is improper because the rejection does not establish that a polyol containing an ester group would have been known in the process disclosed by Kistner. This is especially the situation when Kistner does not disclose a polyol containing an ester group and the rejection does not point to any documentary evidence to show that a polyol containing an ester group is known in preparing a plant cultivating substrate. Kistner does not disclose adding a polyol when consolidating the aggregate material let alone a polyol containing an ester group. Following the disclosure of Kistner, there is absolutely no reason to consolidate his aggregate material by adding a polyol let alone a polyol containing an ester group.

Still further, Appellant's originally filed application discloses at page 23, lines 17-23, superior shape retentivity and water absorptivity of polyester type polyol as compared to polyether type polyol. In particular, it is disclosed that:

Incidentally, in the table of FIG. 4, in Example 1 and Example 2, analyses were conducted with one of aims thereof being to find out what differences in physical properties would result between the case of using a polyester type polyol and the further case of using a polyether type polyol, as the polyol to be added. From this,

it is understood that the polyester type polyol is superior to the polyether type polyol in the respects of both the shape retentivity and the water absorptivity.

Accordingly, the rejection is without sufficient basis in that it does not establish any reason for adding a polyol let alone a polyol containing an ester group in the process or product disclosed by Kistner.

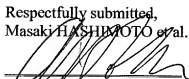
Therefore, the rejection of claim 24 is without sufficient basis and should be reversed.

### CONCLUSION

Accordingly, in view of the above-noted arguments (as well as those already of record), the Board is respectfully requested to reverse the Examiner's decision to finally reject claims 11-27 under 35 U.S.C. § 102 and 103.

Although no fee is believed to be required for entry of this Reply Brief, authorization is hereby provided to charge any fee that is deemed to be necessary to Deposit Account No. 19-0089.

Respectfully submitted,  
Masaki HASHIMOTO et al.

  
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Bruce H. Bernstein  
Reg. No. 29,027

Arnold Turk  
Reg. No. 33094

GREENBLUM & BERNSTEIN, P.L.C.  
1950 Roland Clarke Place  
Reston, VA 20191  
(703) 716-1191